



# UNITED STATES PATENT AND TRADEMARK OFFICE

CH  
UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR  | ATTORNEY DOCKET NO. | CONFIRMATION NO.       |
|--|-------------|-----------------------|---------------------|------------------------|
| 10/801,791   | 03/16/2004  | Christopher G. Malone | 200312298-1         | 1924                   |
| 22879  | 7590        | 11/18/2005            | EXAMINER            |                        |
| HEWLETT PACKARD COMPANY<br>P O BOX 272400, 3404 E. HARMONY ROAD<br>INTELLECTUAL PROPERTY ADMINISTRATION<br>FORT COLLINS, CO 80527-2400 |             |                       |                     | CHANDRAN, BIJU IINDIRA |
|  |             |                       | ART UNIT            | PAPER NUMBER           |
|  |             |                       | 2835                |                        |

DATE MAILED: 11/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                 |                        |
|------------------------------|-----------------|------------------------|
| <b>Office Action Summary</b> | Application No. | Applicant(s)           |
|                              | 10/801,791      | MALONE, CHRISTOPHER G. |
|                              | Examiner        | Art Unit               |
|                              | Biju Chandran   | 2835                   |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 16 March 2004.  
 2a) This action is FINAL.      2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-23 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-23 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 16 March 2004 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date 3/16/04, 7/11/05.

4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_.  
 5) Notice of Informal Patent Application (PTO-152)  
 6) Other: \_\_\_\_\_.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claim 13 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 13 refers to a second horizontal mounting surface parallel to the first horizontal mounting surface and positioned away from either the top or bottom of the housing. The specification does not describe this limitation, and the figures do not show the second horizontal mounting surface.

***Drawings***

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "second horizontal mounting surface" recited in claim 13 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate

prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

3. Claim 13 objected to because of the following informalities: The claim recites "... mounted parallel to send at least one ...". For the purposes of this examination, the examiner has interpreted this as "... mounted parallel to said at least one ..." Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. Claims 1-5, 7, 9, 10, 12, 14-17, 19 and 23 are rejected under 35 U.S.C. 102(e) as being anticipated by Ishida (PGPub. US 2004/0022045 A1).

- Regarding claim 1, Ishida discloses a housing for mounting electronic equipment therein (figure 1), said housing comprising: at least one horizontally positioned mounting surface (12), said mounting surface positioned between a top and bottom of said housing and having provisions (18) for accepting electrical components (13) positioned thereon such that air may flow between opposing vertical walls of said housing flows along the plane of said mounting surface without traversing bends.
- Regarding claim 2, Ishida further disclose that the electrical components comprise plug-in board connectors (18a).

- Regarding claim 3, Ishida further discloses that the plug-in connections are in-line with the said airflow (figures 1 and 2).
- Regarding claim 4, Ishida further discloses that the housing further comprises: at least one air fan (14a) mounted on a first one of said opposing vertical walls of said housing; and at least one air vent (air vent of fan 14b, paragraph 0022) constructed in a second one of said opposing vertical walls of said housing.
- Regarding claim 5, Ishida further discloses a fan for moving air between said opposing vertical surfaces (14a); and at least one air opening in each of said opposing vertical surface (air vents of fans 14a and 14b, paragraph 0022).
- Regarding claim 7, Ishida further discloses that the housing further comprises: a plurality of electronic components (13) connected to said mounting surface, said electronic components extending perpendicular to said mounting surface and in-line with said air moving between said opposing vertical surfaces (figure 1).
- Regarding claim 9, Ishida further discloses that the electronic components are plug-in boards (see description of the cards being plugged in to the board in paragraph 0028).
- Regarding claim 10, Ishida further discloses that the provisions for accepting electrical components (18) are positioned on both the top

and bottom surfaces of said horizontal mounting surface (figure 1, first part of paragraph 0023).

- Regarding claim 12, Ishida further discloses that the mounting surface has positioned thereon a plurality of plug-in boards (13), said positioned boards being blades of a computer system (cards of a computer system, as described in the abstract).
- Regarding claim 14, Ishida discloses a computer (see abstract) comprising: at least one mounting plane (12) within said computer, each said mounting plane having mounted thereon a plurality of connectors (18), each connector adapted for mating with perpendicularly disposed plug-in boards (13) such that air transiting from a first vertical wall of said computer to an opposing vertical wall of said computer flows parallel to said mounting plane and in-line with mated ones of said plug-in boards (figure 1).
- Regarding claim 15, Ishida further discloses that the mounting plane is disclosed parallel to the top and bottom of said computer.
- Regarding claim 16, Ishida further discloses that the connectors are mounted on the top and bottom surfaces of at least one of said mounting planes (figure 1, first part of paragraph 0023).
- Regarding claim 17, Ishida discloses all the limitation of claim 14 and further disclose that at least one plug-in board (13) is a blade of a

computer system (cards of a computer system, as described in the abstract).

- Regarding claim 19, Ishida further discloses at least one fan operative for forcing air between a front vertical surface and a back vertical surface of the said computer (paragraph 0022).
- Regarding claim 23, Ishida discloses a system for reducing air flow restrictions in a housing, said system comprising: means for capturing electrical components (18) within said housing, said captured components each maintained at an angle (90° angle) to said capturing means; and means for supporting (12) a plurality of said capturing means, said supporting means positioned such that air flowing between vertical surfaces of said containing means moves without bending around said supporting means.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishida in view of Kitlas et al. (US Patent 5,852,547).

- Regarding claim 6, Ishida discloses all the limitations of claim 5, but does not disclose that the fan is mounted on the horizontally positioned mounting surface. Kitlas et al. disclose a housing for mounting electronic equipment comprising a fan (12) that is mounted on a horizontally positioned mounting surface. At the time of the invention, it would have been obvious to one of ordinary skill in the art to incorporate the fan taught by Kitlas et al. in the housing for mounting electronic components as disclosed by Ishida et al. to easily replace the fan in the event of failure.
- Regarding claim 8, Ishida discloses all the limitations of claim 7, but does not disclose a fan mounted on one of the connected components. Kitlas et al. disclose a housing for mounting electronic equipment comprising a fan (12) that is mounted on a component connected to the mounting surface. At the time of the invention, it would have been obvious to one of ordinary skill in the art to incorporate the component with the fan as taught by Kitlas et al. in the housing for mounting electronic components as disclosed by Ishida et al. to provide an added means for cooling certain components (column 2, lines 5-15).

6. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishida in view of Pokharna et al. (PGPub US 2005/0013116 A1). Ishida discloses all the limitations of claim 10, but does not disclose that the

airflow above and below the horizontal mounting surface can be controlled independently. Pokharna et al. discloses a housing for mounting electronic components, where the airflow above and below the horizontal mounting surface can be controlled independently ('208 in figure 2, and '302' in figure 3). At the time of the invention, it would have been obvious to one of ordinary skill in the art to incorporate the air flow control means taught by Pokharna et al. in the housing for mounting electronic equipment as disclosed by Ishida to provide controlled cooling for critical electronic components that may be mounted above or below the horizontal mounting surface.

7. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishida in view of Steinman et al. (US Patent 6,625,019 B1). Ishida discloses all the limitations of claim 1, but does not disclose a second horizontal mounting surface. Steinman et al. disclose a housing for mounting electronic components with a second horizontal mounting surface (1010) mounted parallel to the first mounting surface (1012) and positioned away from the top and bottom of the housing (figure 10a). At the time of the invention, it would have been obvious to one of ordinary skill in the art to incorporate the second horizontal mounting surface as taught by Steinman et al. to increase the number of electronic components that can be mounted in the housing.

8. Claims 18, 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishida in view of Nguyen et al. (US Patent 6,594,148 B1).
  - Regarding claim 18, Ishida discloses all the limitations of claim 15, and further discloses connectors on either the top or bottom surface of at least one of said mounting planes. Ishida does not disclose an opening in one of the vertical surfaces. Nguyen et al. disclose a housing for electronic components that have an opening in one of the vertical surfaces, which will allow the plug-in boards to be mated with connectors on the mounting planes. At the time of the invention, it would have been obvious to one of ordinary skill in the art to incorporate the opening in one of the vertical surfaces as taught by Nguyen et al., the computer disclosed by Ishida to provide an access port for inserting and removing the plug-in boards from the housing.
  - Regarding claim 20, Ishida discloses a computer housing with electrical components (13) connected to a structure (12) such that they are maintained at an angle to said structure, said structure having been horizontally pre-positioned within said housing, and moving air between said first vertical portion of said housing and an opposing vertical portion of said housing along the plane of said structure (figure 1). Ishida does not disclose an opening in a first vertical portion of said

housing. Nguyen et al. disclose an opening (24) in the first vertical portion of a computer housing. At the time of the invention, it would have been obvious to one of ordinary skill in the art to incorporate the opening as taught by Nguyen et al. in the computer housing disclosed by Ishida to insert and remove the plug-in boards from the housing.

The housing as disclosed by Ishida and modified by Nguyen et al. necessitates the method of mounting recited in this claim.

- Regarding claim 21, Ishida further discloses that connecting comprises mating the electrical component with the structure using plug-in connectors (paragraph 0028).

9. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishida as modified by Nguyen et al. as applied to claim 20 above, and further in view of Pokharna et al. (PGPub. US 2005/0013116 A1). Ishida as modified by Nguyen et al. satisfies all the limitations of claim 20, but does not disclose a method of moving air independently above and below the said structure. Pokharna et al. discloses a method of moving air ('208' in figure 2, and '302' in figure 3) independently above and below the structure. At the time of the invention, it would have been obvious to one of ordinary skill in the arts to incorporate the method of moving air independently above and below the structure as taught by Pokharna, in the method of mounting electronic components within the computer

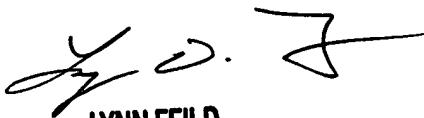
housing as disclosed by Ishida and Nguyen et al., to provide for increased cooling air for critical components that may be located above or below the structure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Biju Chandran whose telephone number is (571) 272-5953. The examiner can normally be reached on 8AM - 5PM. Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynn Feild can be reached on (571) 272-2092. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

bic



LYNN FEILD  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800